DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	SOLITUDE, LAKE	Lake Area (ha):	2.02
Town:	NEWBURY	Maximum depth (m):	6.7
County:	Merrimack	Mean depth (m):	2.0
River Basin:	Merrimack	Volume (m^3):	40000
Latitude:	43°18' N	Relative depth:	4.2
Longitude:	72°04' W	Shore configuration:	---
Elevation (ft):	2370	Areal water load (m/yr):	3.71
Shore length (m):	---	Flushing rate (yr^{-1}):	1.90
Watershed area (ha):	11.7	P retention coeff.:	0.71
% watershed ponded:	0.0	Lake type:	natural

BIOLOGICAL:	12 February 1987	12 August 1986
DOM. PHYTOPLANKTON (% TOTAL) #1	PENNATE SPP 56%	DINOBRYON 98%
#2	TABELLARIA 25%	
#3		
PHYTOPLANKTON ABUNDANCE (cells/mL)		970.0
CHLOROPHYLL-A (µg/L)		14.30
DOM. ZOOPLANKTON (% TOTAL) #1	KERATELLA 74%	CONOCHILOIDES 77%
#2	CALANOID COPEPOD 26%	KELLICOTTIA 6%
#3		
ROTIFERS/LITER	37	227
MICROCRUSTACEA/LITER	13	28
ZOOPLANKTON ABUNDANCE (#/L)	50	255
VASCULAR PLANT ABUNDANCE		Sparse
SECCHI DISK TRANSPARENCY (m)		1.5
BOTTOM DISSOLVED OXYGEN (mg/L)	0.9	0.0
BACTERIA (fecal col., #/100 ml) #1		< 10
#2		
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 3.0
Hypolimnion volume (m^3): 40

CHEMICAL:

Lake: SOLITUDE, LAKE
Town: NEWBURY

	12 February 1987		12 August 1986		
DEPTH (m)	2.0	5.5	1.0	3.0	5.5
pH (units)	5.0	5.2	4.9	5.0	5.8
A.N.C. (Alkalinity)	0.2	1.0	-0.3	-0.3	2.8
NITRATE & NITRITE NITROGEN	0.08	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.63	0.73	0.80	0.45	0.68
TOTAL PHOSPHORUS	0.028	0.021	0.025	0.029	0.027
CONDUCTIVITY (μ mhos/cm)	22.8	21.4	18.7	18.9	20.8
APPARENT COLOR (cpu)	43	53	65	65	60
MAGNESIUM			0.19		
CALCIUM			0.7		
SODIUM			0.5		
POTASSIUM			0.30		
CHLORIDE	< 2	< 2	< 10		< 10
SULFATE	5	5			
TN : TP	25	35	32		25
CALCITE SATURATION INDEX					

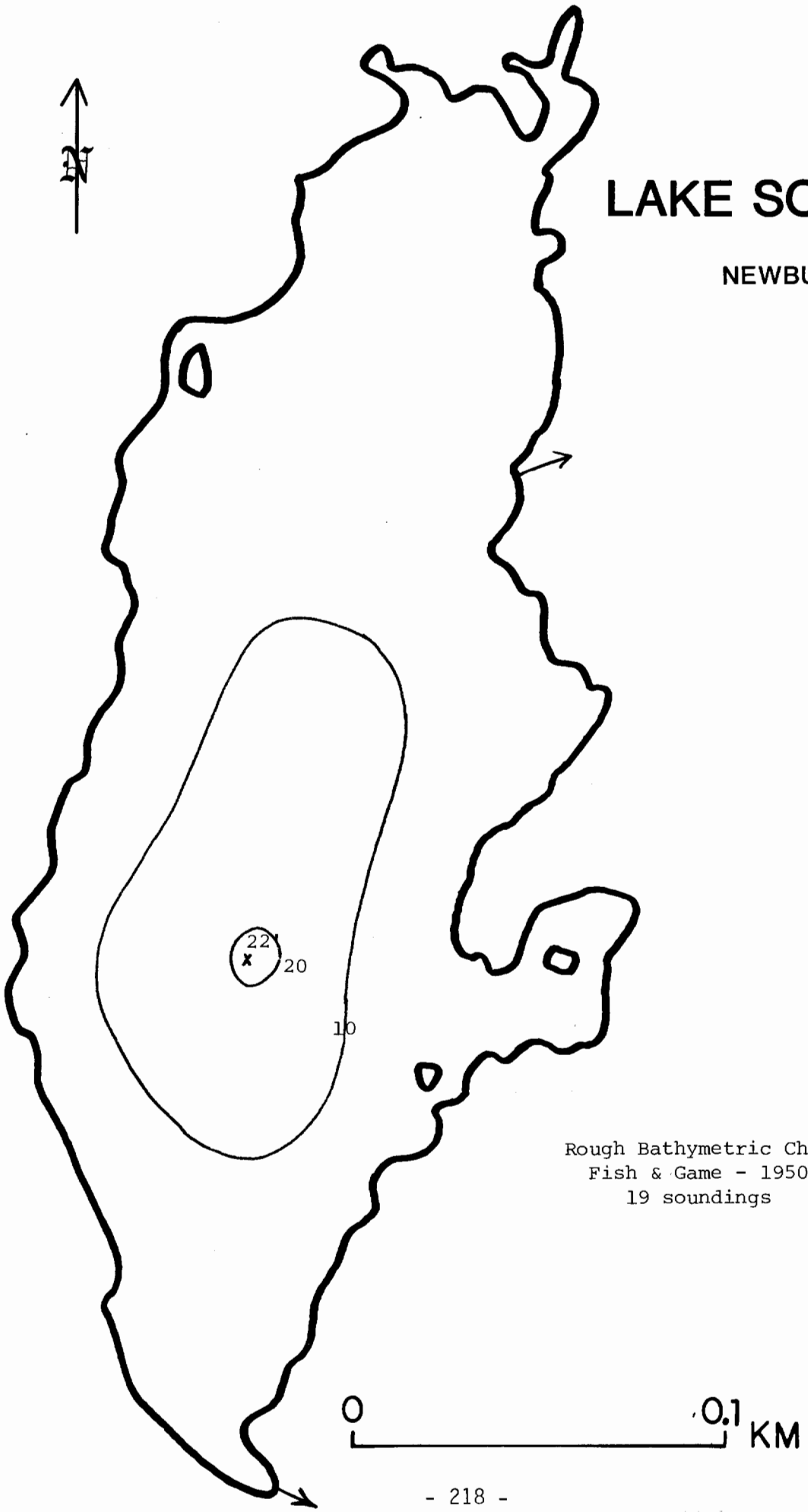
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1986

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
5	3	0	3	11	Eutro.

COMMENTS:

1. This is a high elevation remote pond located on the southeastern side of Mt. Sunapee. Access is by trail only. The pond is sampled each spring by helicopter when the Fish and Game Department stocks it with trout.
2. No depth soundings were taken in 1986.
3. The golden algae were the dominant class (95%) of the whole-water phytoplankton. Dominant genera were Mallomonas (80%) and Dinobryon (15%). The usually dominant nannoplankton were essentially absent in this pond.
4. This is one of our so-called "acid rain ponds", having a low pH and negative alkalinity. However, it turned out to be eutrophic, with high phosphorus and color - not typical of acid rain-impacted ponds. Color values have not been high (15) during our spring sampling of the pond by helicopter.
5. A lot of ledge in the watershed was observed.



Rough Bathymetric Chart
Fish & Game - 1950
19 soundings

FIELD DATA SHEET

LAKE: SOLITUDE, LAKE
DATE: 08/12/86

TOWN: NEWBURY
WEATHER: CLEAR, COOL

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	19.2	7.8	83 %
	1.0	19.0	7.5	81 %
	2.0	19.0	6.5	70 %
	3.0	16.8	0.4	4 %
	4.0	14.8	0.2	2 %
	5.0	13.2	0.0	0 %
	6.0	11.0	0.0	0 %
	6.5	10.8	0.0	0 %

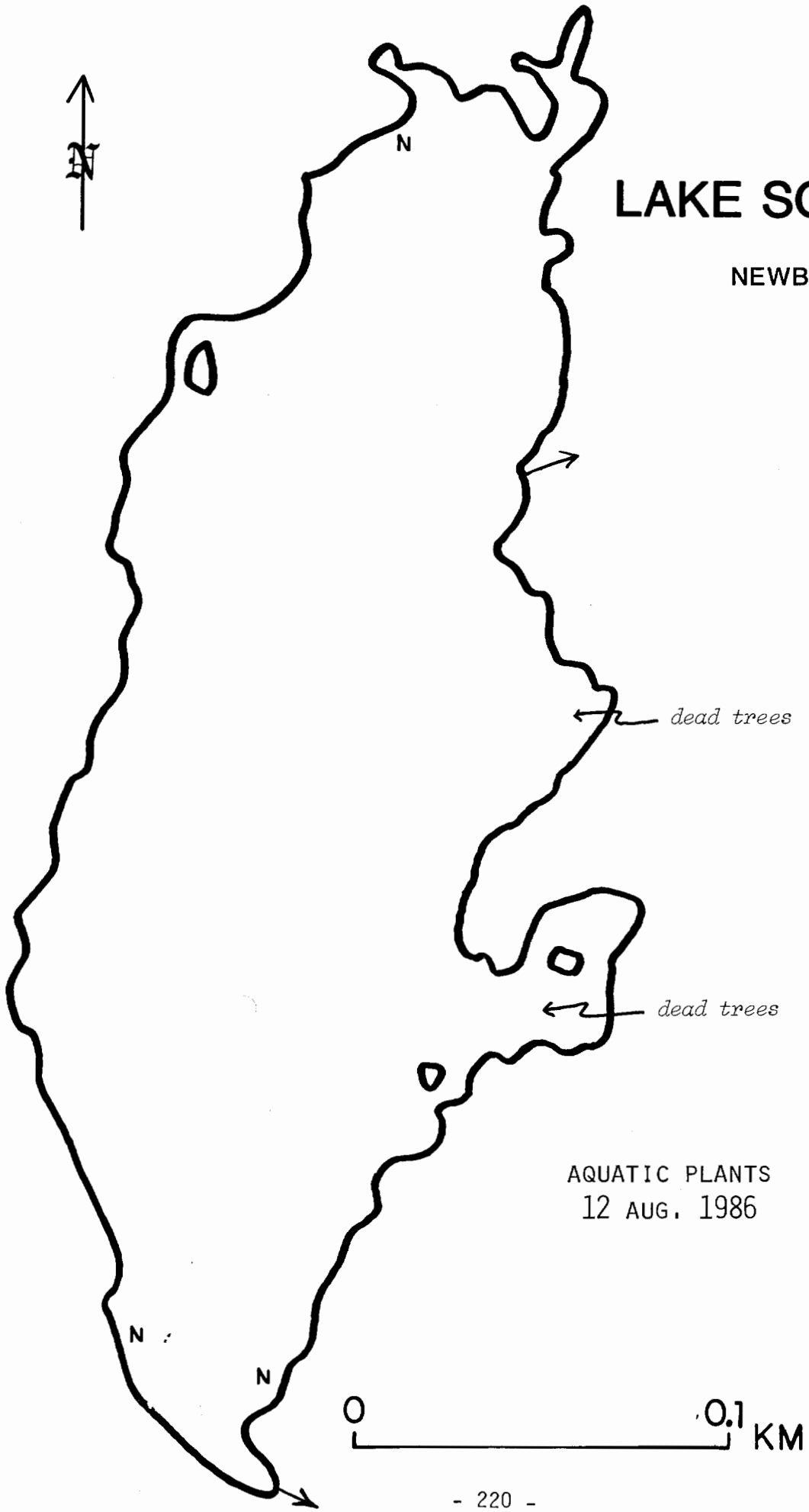
SECCHI DISK (m): 1.5

BOTTOM DEPTH (m): 6.5

TIME: 941

COMMENTS:

*Dissolved oxygen values are in mg/L


N
N
LAKE SOLITUDE
NEWBURY
dead trees
dead trees
AQUATIC PLANTS
12 AUG. 1986
N
N
0
0.1 KM

AQUATIC PLANT SURVEY

LAKE: SOLITUDE, LAKE TOWN: NEWBURY DATE: 08/12/86

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
N	Nymphaea	White water lily	Sparse

OVERALL ABUNDANCE: Sparse

GENERAL OBSERVATIONS:

1. True aquatic plants were sparse, but leatherleaf and other woody shrubs were very common along the water's edge.
2. Observed trout, salamanders, and green and leopard frogs. Two beaver houses were present. A number of dead trees standing in the water were also present.